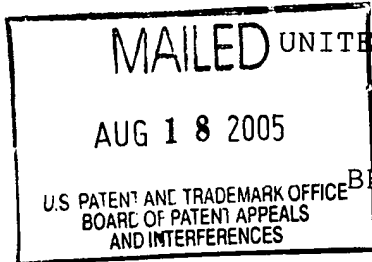


The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.



UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PRADEEP K. DHAL, RICHARD T. INGWALL,  
ERIC S. KOLB, HSIN YU LI  
and DAVID A. WALDMAN

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Appeal No. 2005-1810  
Application No. 08/970,066

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ON BRIEF

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Before KIMLIN, KRATZ and TIMM, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

#### DECISION ON APPEAL

This is an appeal from the final rejection of claims 28-40.

Claim 28 is illustrative:

28. A volume holographic recording medium comprising an acid generator capable of producing an acid upon exposure to actinic radiation; a binder; a difunctional epoxide monomer or oligomer; and a polyfunctional epoxide [sic, epoxide] monomer or oligomer, the difunctional and polyfunctional epoxide monomers or oligomers being capable of undergoing cationic polymerization initiated by the acid produced from the acid generator, wherein said binder does not inhibit cationic polymerization of said difunctional and polyfunctional monomers or oligomers and the refractive index of said binder is significantly different from that of the polymerized difunctional and polyfunctional monomers

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or oligomers; and wherein said recording medium is essentially free from material capable of free radical polymerization.

The examiner relies upon the following references as evidence of obviousness:

Haugh	3,658,526	Apr. 25, 1972
Keys et al. (Keys)	4,950,567	Aug. 21, 1990
Meier et al. (Meier)	5,124,233	Jun. 23, 1992
Cornforth et al. (Cornforth)	5,418,016	May 23, 1995
Ohe et al. (Ohe)	5,698,345	Dec. 16, 1997
Sato et al. (Sato)	5,702,846	Dec. 30, 1997
Eckberg et al. (Eckberg)	391,162	Oct. 10, 1990
(European Patent Application)		
Dhal et al. (Dhal)	WO 97/13183	Apr. 10, 1997
(PCT Int'l Application)		

J.V. Crivello & J.L. Lee (Crivello), "The Synthesis, Characterization, and Photoinitiated Cationic Polymerization of Silicon-Containing Epoxy Resins," 28 Journal of Polymer Science: Part A: Polymer Chemistry 479-503 (1990)

The parent application of the present application on appeal was before this Board and, in a decision dated September 4, 2002, the Board affirmed the examiner's rejections of the appealed claims under 35 U.S.C. § 103 over prior art now before us. Like the present claims on appeal, the claims of the prior appeal were directed to a volume holographic recording medium comprising, inter alia, an acid generator capable of producing an acid upon exposure to actinic radiation, a binder, and difunctional, as well as polyfunctional, epoxide monomers or oligomers. The instant claims on appeal have the additional language that the

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"recording medium is essentially free from material capable of free radical polymerization." Also, appellants have proffered an Affidavit under 37 CFR § 1.132 by David A. Waldman, one of the present inventors.

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

(a) claim 28 over Meier;

(b) claims 28-31, 39 and 40 over Dhal in view of Ohe, Keys and Cornforth;

(c) claims 28-31, 39 and 40 over Dhal in view of Ohe, Keys, Cornforth and Sato; and

(d) claims 28-40 over Dhal in view of Ohe, Keys, Cornforth, Crivello and/or Eckberg.

Appellants request at page 11 of the principal brief that "all the claims on appeal be considered as a single group." Accordingly, all the appealed claims stand or fall together with claim 28.

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the affidavit evidence relied upon in support thereof. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of

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§ 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer.

We consider first the rejection of all the appealed claims, 28-40, over the combined teachings of Dhal, Ohe, Keys, Cornforth, Crivello and/or Eckberg. For the reasons articulated in the Board's decision in the prior appeal, we find that the claimed subject matter would have been prima facie obvious to one of ordinary skill in the art over the disclosure of Dhal alone, and the conclusion of obviousness is further buttressed by the teachings of Ohe and Key (see the discussion at pages 4-6 of the prior opinion). Appellants have made no argument that Dhal does not meet the claim requirement for a recording medium that is essentially free from material capable of a free radical polymerization.

As for the Waldman Affidavit offered to rebut the prima facie case of obviousness, it is our judgement that the affidavit fails to establish that the comparative results between one composition comprising only a diepoxide monomer and two compositions within the scope of the appealed claims, comprising a mixture of diepoxide monomers and triepoxide or tetraepoxide monomers, would have been truly unexpected to one of ordinary

skill in the art. This is particularly the case in light of the examiner's rationale concerning what would have been expected by one of ordinary skill in the art when using epoxide monomers having a functionality of greater than two. The examiner explains that the increased speed/sensitivity shown in the affidavit

is an obvious result of adding polyfunctional monomers based upon the teachings of Cornforth et al. '016 [and that] the increased crosslinking available due to the use of polyfunctional monomers allows the linear polymeric chains [to] bond to one another and form two and three dimensional structures, rather than collection single polymeric chains and would be expected by one of ordinary skill in the art (polymerization arts) to exhibit increased structure (rigidity) due to this bonding between polymer chains and resist shrinkage due to the additional dimensionality of the polymerized structure [Page 11 of Answer, last two sentences].

The Waldman Affidavit, on the other hand, does not address the examiner's reasoning but only reports that "[a] significant diminution in the threshold energy requirement for observation of stable holographic activity occurs when the difunctional epoxide monomer is partially replaced in the holographic recording formulation with a trifunctional or tetrafunctional epoxide monomer" (page 8 of Affidavit, second paragraph, first sentence). Conspicuously absent in the Affidavit is a statement of what would have been expected by one of ordinary skill in the art when

the diepoxide is partially replaced by a triepoxide or tetraepoxide. Without a baseline as a standard for what would have been expected by one of ordinary skill in the art, it cannot be determined what would have been unexpected by one of ordinary skill in the art. We note that the affiant makes no statement that the results offered would have been unexpected. Just as unexpected results are evidence of nonobviousness, expected results are evidence of obviousness. In re Skoner, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975).

Regarding the rejection of claim 28 over Meier, appellants do not dispute the examiner's factual determination that Meier discloses a light sensitive composition comprising both diepoxide and polyepoxide monomers and oligomers, as well as a binder. We are not persuaded by appellants' argument that the compositions presently claimed require a particular type of binder material in order to form stable volume holograms. It is significant that the claims on appeal fail to recite any particular class of binders. Furthermore, appellants have not made the argument that the binders used by Meier would not be suitable to form stable volume holograms. Also, while the present specification states that polystyrenes are preferred binders, Meier discloses the use of polystyrenes as binders at column 7, lines 26 et seq.

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Furthermore, appellants' specification acknowledges that "those skilled in the holographic art will have no difficulty in selecting an appropriate binder by routine empirical tests" (page 8 of specification, lines 22-24).

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

Edward C. Kurtin

EDWARD C. KIMLIN  
Administrative Patent Judge

Robt F. Kuhl

PETER F. KRATZ  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS AND  
INTERFERENCES

Catherine

CATHERINE TIMM  
Administrative Patent Judge

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